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Operating Instructions

Model TC02A

DROPOUT SIGNAL GENERATOR

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CHAPTER 1 OUTLINE

The Model TC02A dropout signal generator generates dummy dropouts necessary to make precise corrections of the detection level, detection width, etc. of a dropout counter. Required attenuation depth, time width, generating intervals and dropout number can be set by using push-control type thumb rotary switches located on the panel. Furthermore, by simply adding FM signals to the external RF input connector, this unit can also be used as a dropout simulator to check dropout compensation circuits of VTRs, video discs, etc.

CHAPTER 2 SYSTEMATIC DIAGRAM

Refer to the separate paper.

CHAPTER 3 APPEARANCE

Refer to the separate paper. (Figure No. P3-M262081)

CHAPTER 4 RATINGS

4-1 Setting range of attenuation depth (DEPTH)

-1 dB ∿ -31 dB (In 1 dB increments)

4-2 Setting range of time width (WIDTH)

0.1 μs ∿ 99.9 μs, in 0.1 μs increments

4-3 Setting range of dropout generation intervals

0.01 sec. ∿ 9.99 sec. (In 10 msec increments.)

4-4 Preset number of dropouts

1 ~ 99999

4-5 Dropout counter indication

5 Digits

4-6 External RF input

a. Input level (within AGC operating range): 0.1 Vp-p ∿ 1 Vp-p

b. Input frequency range: 0.1 MHz ∿ 10 MHz

c. Input impedance: HIGH

4-7 RF output

a. Output level: STD ..... 0.5 Vp-p

VARI ..... More than 0 ∿ 1 Vp-p

b. Output impedance: 75Ω

c. Carrier frequency (internal): 4 MHz

4-8 Dropout pulse output: TTL

4-9 General specifications

a. Power voltages available: AC 100/115/215/230 V ± 10%, 50/60 Hz

b. Power consumption: Approx. 40 VA

c. Dimensions: 426 (W) x 99 (H) x 450 (D) mm

d. Weight: Approx. 9 kg

CHAPTER 5 CONTROLS ON PANELS

5-1 Front panel (Refer to Fig. 5-1.)

① POWER SW

A power switch. Set it to ON and the pilot lamp lights.

② DEPTH DIG SW

This 2-digit digital switch sets the depth of a dropout. (Even if set to more than 31 dB, this setting is treated as a 0 setting.)

③ WIDTH DIG SW

This 3-digit digital switch sets the width of a dropout.

④ INTERVAL DIG SW

This 3-digit digital switch sets the generation period of a dropout.

⑤ OUTPUT LEVEL volume control

Outputs the RF signal from zero to approximately 1 Vp-p level. When fully rotated to the left, 0.5 Vp-p (75 Ω) is output.

⑥ D.O. COUNTER

This 5-digit, 7-segment LED indicates the output number of dropouts.

⑦ IND

During dropout output, this lamp lights for about a 100 msec. interval.

⑧ PRESET

This 5-digit digital switch sets the output number of dropouts.

⑨ RF SIGNAL EXT SW

Since the internal oscillator is activated when the power switch is set to ON, a press of this switch makes external oscillator selections available. When depressed, the center LED lights. Depress it again, and the internal oscillator becomes available and the LED turns off.

⑩ RF SIGNAL IND

LEDs for LO, GO and HI. Used to monitor RF signal levels and indicate whether the level remains within the control range of the internal AGC amplifier or not.

⑪ RESET SW

This switch initiates operation of this generator, thus clearing the dropout counter indicator.

⑫ START SW

A switch to commence the generation of dropouts. As soon as generation has begun, the LED lights.

⑬ STOP SW

Halts the generation of dropouts. To continue generation again, press START SW.

5-2 Rear panel (Refer to Fig. 5-2.)

① EXT RF IN

An input connector for externally supplied RF signals.

② RF OUT

An output connector for dropouts. 75Ω output impedance.

③ DO. PULSE OUT (TTL)

A trigger signal output connector for dropouts. TTL level output.

④ GND

A ground terminal.

⑤ Fuse

To protect the power supply.

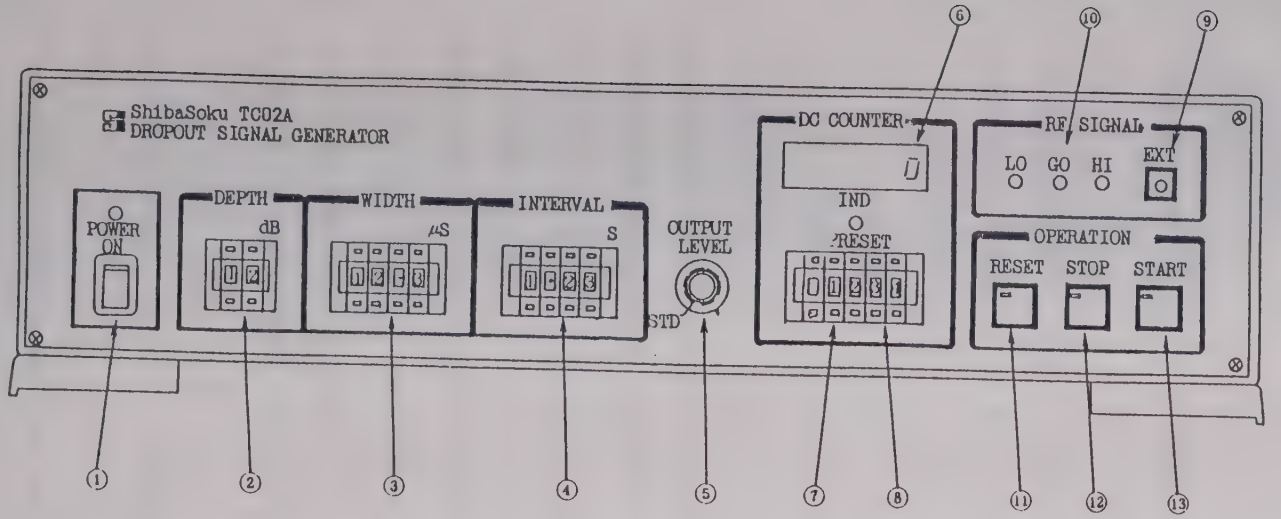


図５－１　前面パネル図

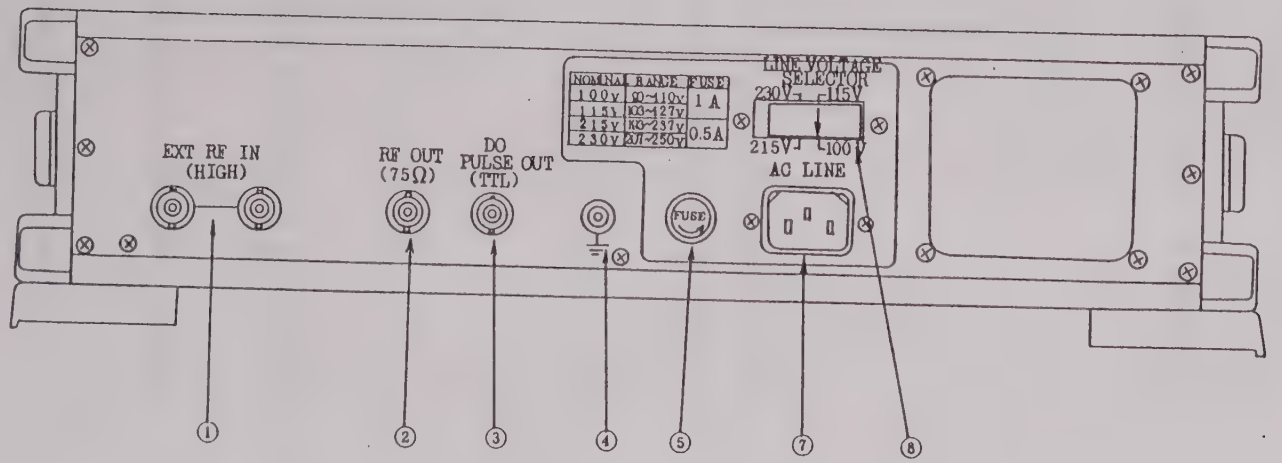


Fig. 5-2 Rear panel

⑥ LINE VOLTAGE SELECTOR

Adjust this selector to the desired power voltage.

⑦ AC LINE

An input connector for AC power supply.

CHAPTER 6 HANDLING METHOD

6-1 Preparation before operation

① Set the LINE VOLTAGE SELECTOR to the desired power voltage. (Align arrow mark with the desired voltage value.)

② Insert the attached AC cable into the AC LINE connector.

6-2 When internal oscillation is used

① Turn the power switch to ON and "0" is indicated on the DO. COUNTER.

② Confirm that the RF SIGNAL EXT LED is out and that the GO LED is lit.

③ Set DEPTH, WIDTH, INTERVAL and PRESET values.

[Example]

DEPTH	20 dB	20	dB
WIDTH	15.5 μs	15.5	μs
INTERVAL	10 ms	0.01	s
PRESET	9000	9000	

④ Connect the RF OUT connector to the measuring unit with a cable.

⑤ Depress the START switch, and the generator begins counting. It automatically stops at the preset value.

⑥ If counting is desired again, depress the RESET switch and then the START switch.

6-3 When external oscillation is used

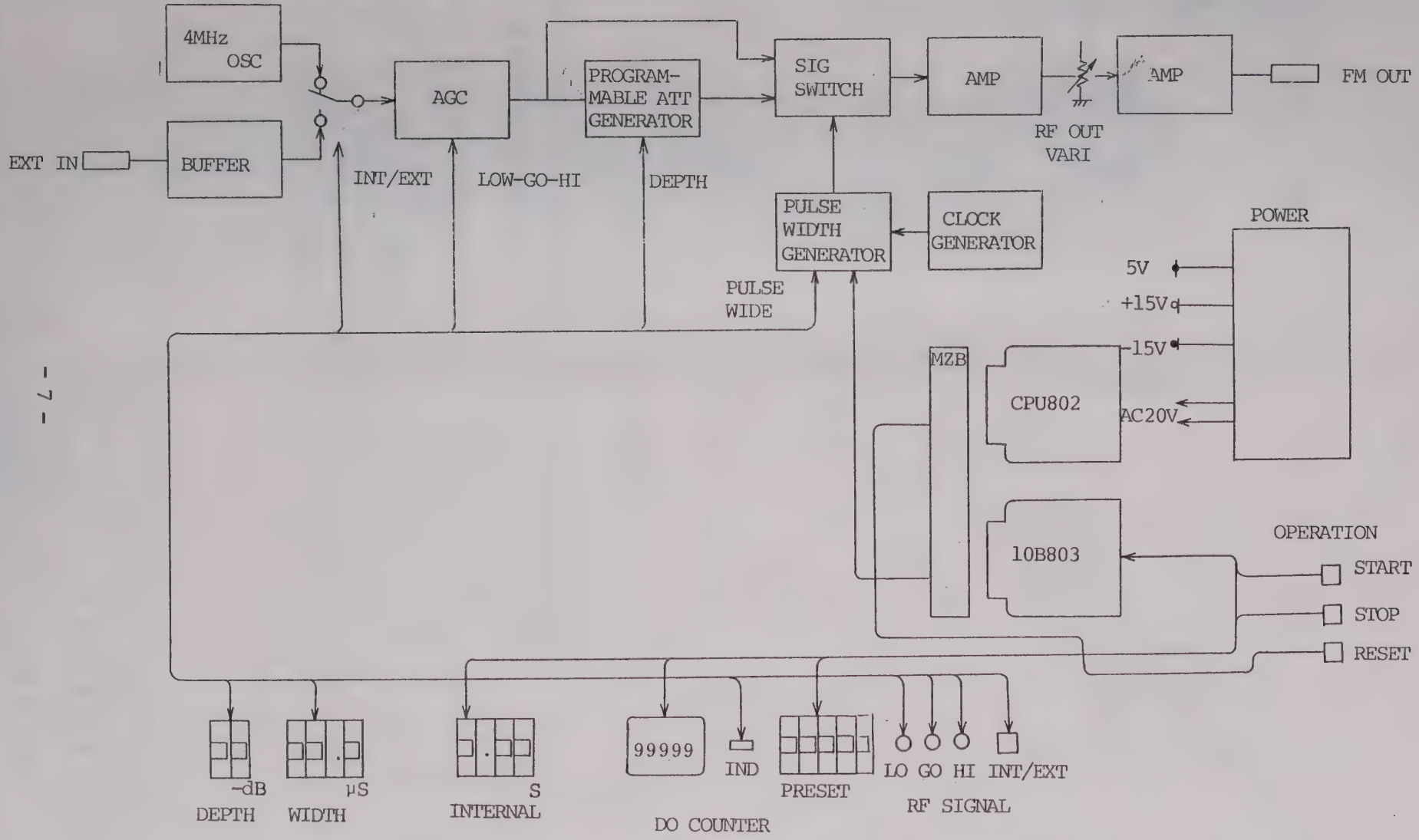
① Connect the external oscillator to the EXT RF IN connector.

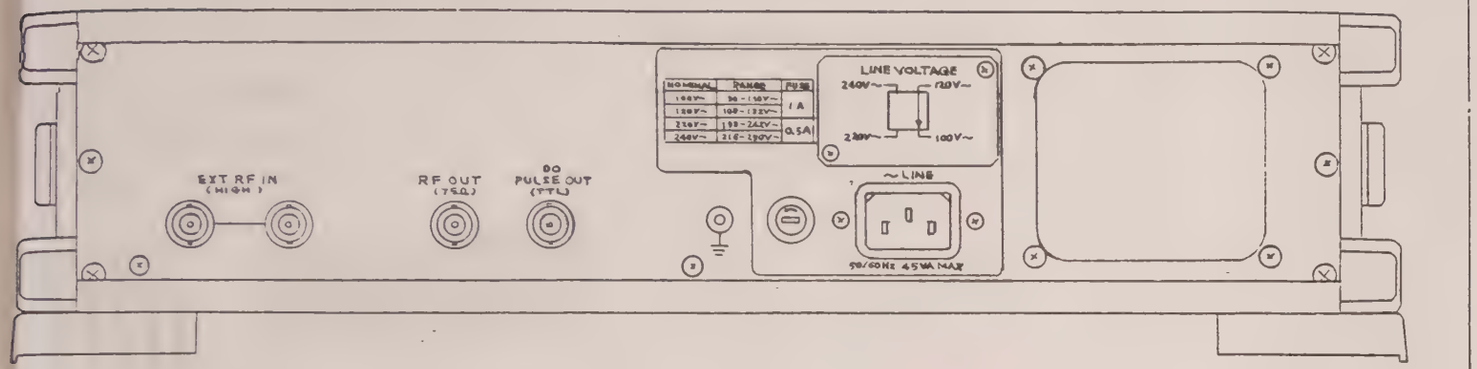
② Set the POWER switch to ON.

③ Depress the EXT switch for the RF SIGNAL and confirm that the LED of the EXT is lit.

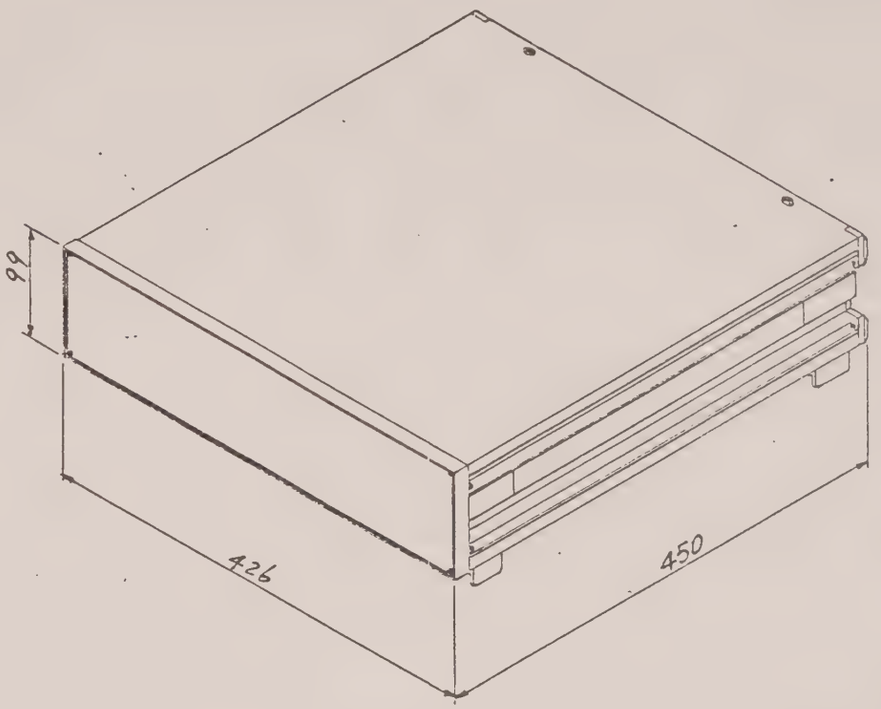
④ Vary the output level of the oscillator so that the GO LED lamp is lit.

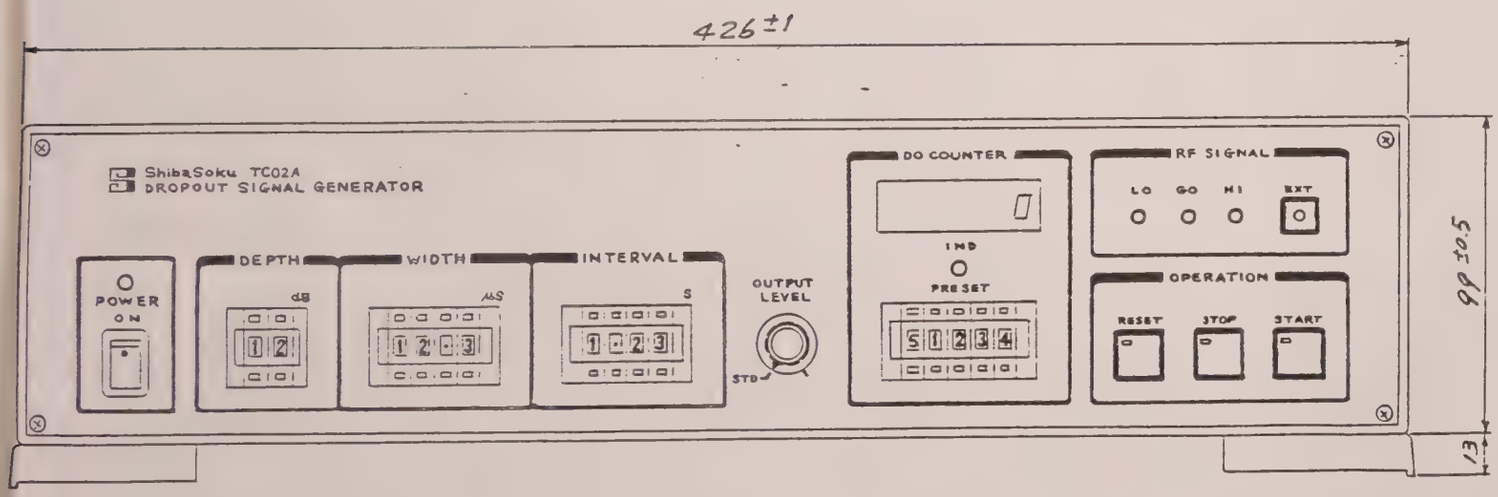
⑤ Thereafter, conduct the same procedures from ③ of item 6-2.

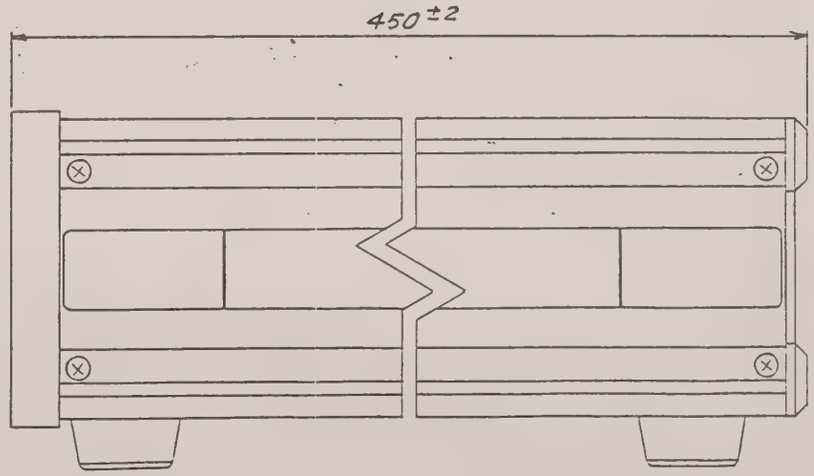

4MHz
OSC
EXT IN
BUFFER
AGC
PROGRAM-
MABLE ATT
GENERATOR
SIG
SWITCH
AMP
AMP
FM OUT
RF OUT
VARI
INT/EXT
LOW-GO-HI
DEPTH
PULSE
WIDTH
GENERATOR
CLOCK
GENERATOR
PULSE
WIDE
POWER
5V
+15V
-15V
AC20V
MZB
CPU802
10B803
OPERATION
START
STOP
RESET
-dB
DEPTH
µS
WIDTH
S
INTERNAL
99999
IND
DO COUNTER
PRESET
LO GO HI INT/EXT
RF SIGNAL



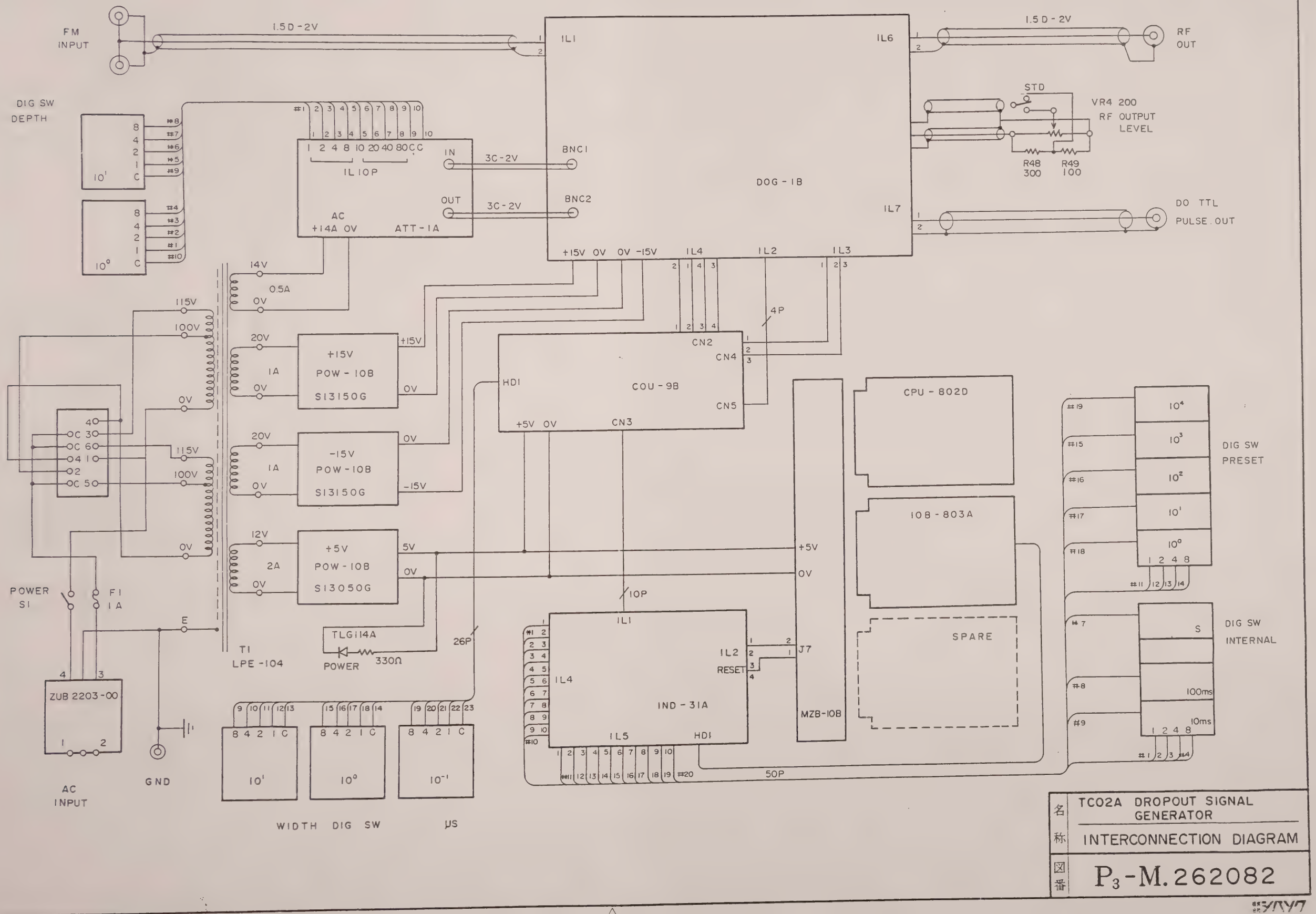
REAR VIEW







設計製図	設計		承認	名称	TC02A DROPOUT SIGNAL GENERATOR
	製図				APPEARANCE
尺度	1/2	昭和58.1.31		図番	P3-M.262081

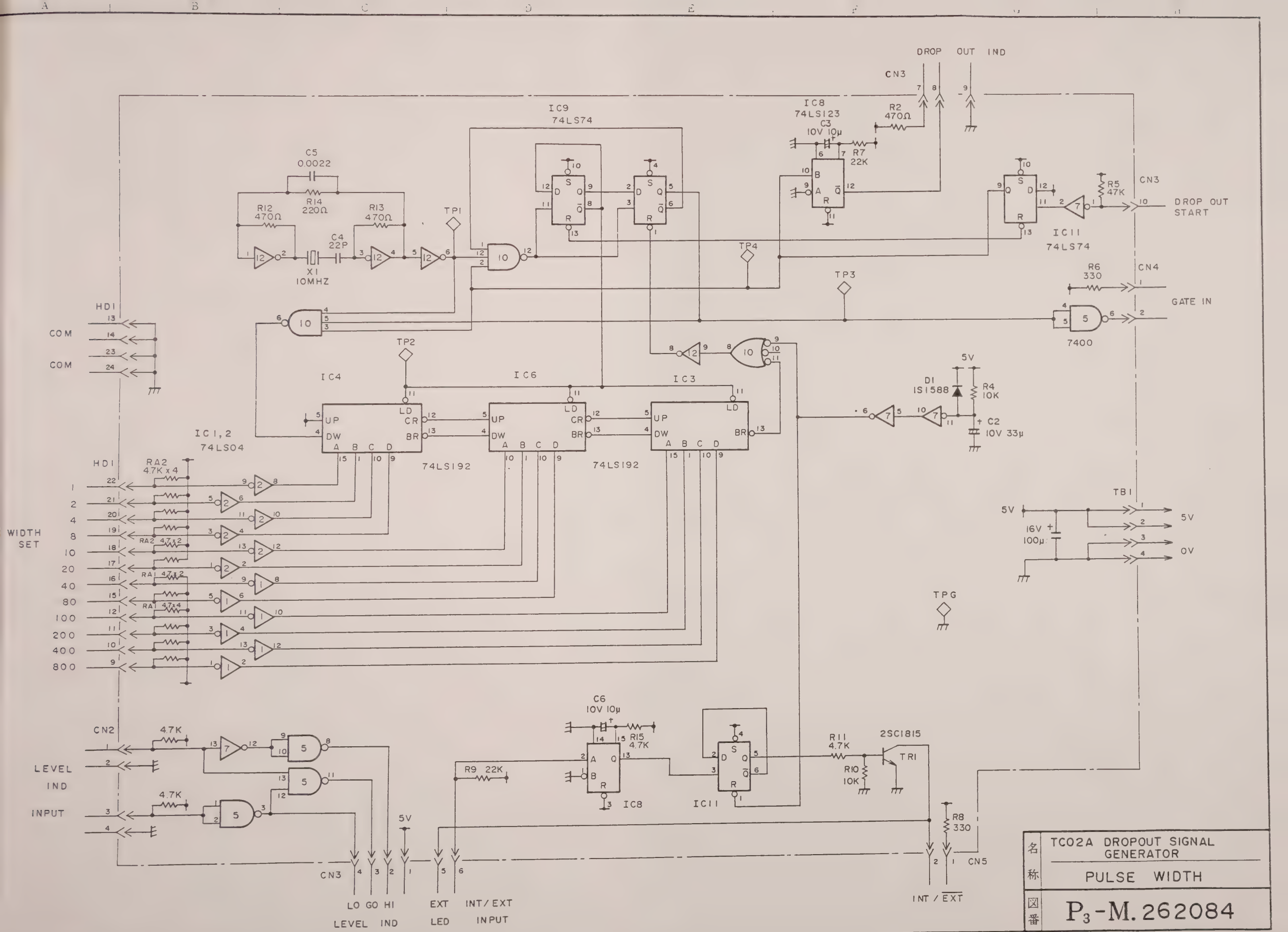


名称	TC02A DROPOUT SIGNAL GENERATOR
	INTERCONNECTION DIAGRAM
図番	P_3-M.262082

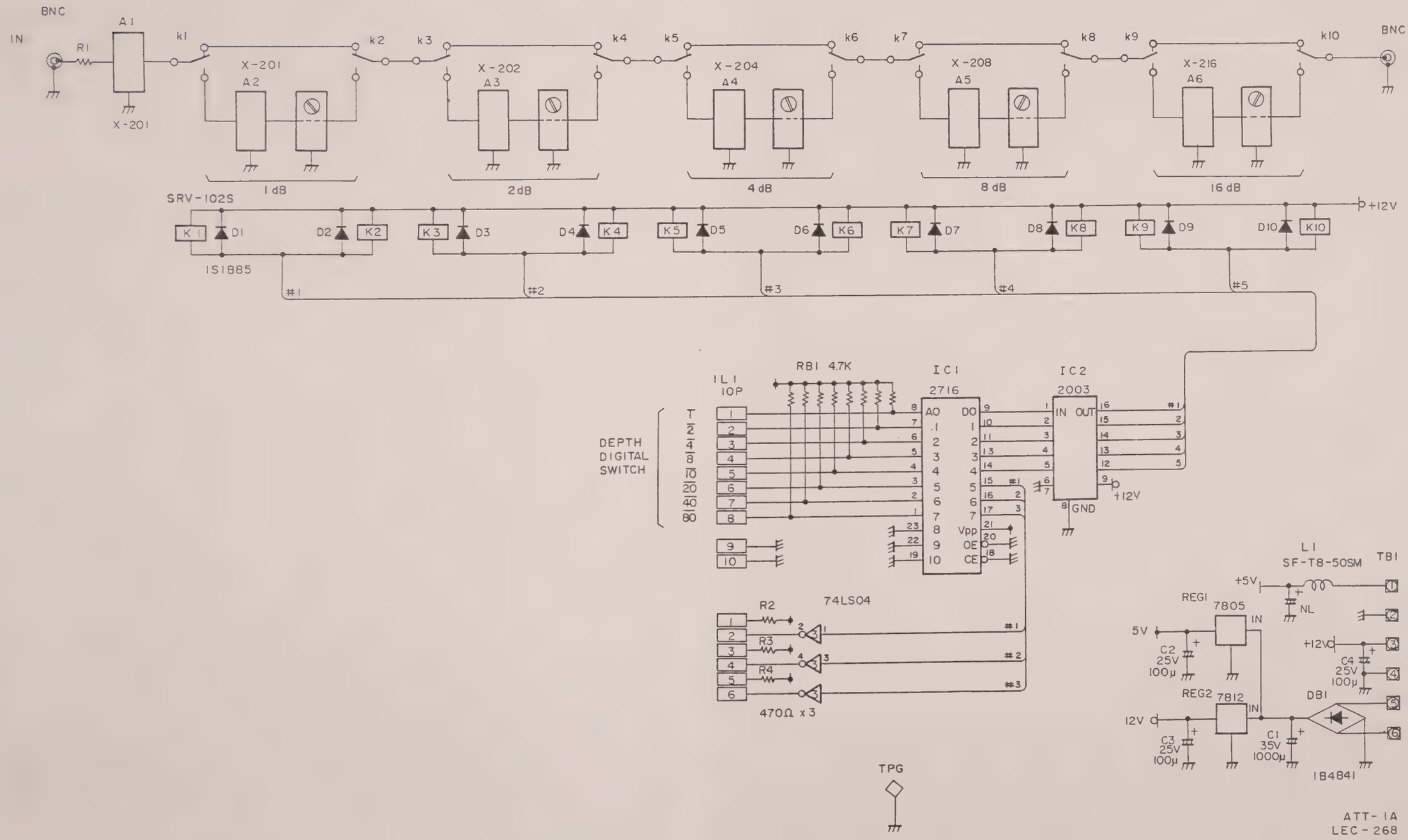
A B C D E F G H

EXT RF IN
IL1
C1 0.01μ
TR1 3SK22
R1 10K
R2 12K
R3 1M
R4 1K
C2 0.1μ
C3 100μ
C4 0.1μ
REG1 MC78 M05CP
C5 25V 100μ
C6 0.1μ
C63 10V10μ
+5V
R5 100
C7 0.1μ
C8 25V 100μ
IC1 DG190BP
CD1 MCD-521-L
R7 560
C9 0.1μ
R6 10K
TR2 2SA495-Y
R8 5.6K
R9 56K
C10 3P
R10 1K
R11 1K
C11 0.01μ
IC2 μA733
R12
C12 10μ
REG2 MC78 LI2ACP
C13 0.1μ
R13 22K
TR3 2SA495-Y
R15 10K
R14 10K
CD2 MCD-521-L
C14 3P
R16 1K
R17 5.6K
R18 5.6K
C15 0.01μ
R19 1K
R20 1K
IC3 μA733
R21 470
TP1 0.5Vp-p
C16 25V 10μ
TR4 2SC594-
TR5 2SC594-Y
VR2 1K
R31 100
R30 560
C22 0.01μ
R23 100
C23 10μ
R33 75
R32 560
C21 100μ
C28 0.01μ
REG3 MC78 L05A-CP
C29 100μ
C30 0.1μ
+5V
NL 16V 4.7μ
D5 IS1588
PH2 OC40
IL3
GATE IN
R77 1K
R34 75
R40 75
C26 10μ
BNC2
BNC1
IC4 MC1445
R76 5.1K
VR6 100K RJ9W
R75 51
C31 100μ
C32 0.1μ
REG4 MC79 L05A-CP
C33 100μ
C34 0.1μ
C35 10μ
74S140 IC10
IL7
D.O PULSE
R48 300
VR4 200 VARI
RF OUTPUT LEVEL
STD
R49 100
IL5
EXT/INT
IL2
D4 IS1588
PH1 TLP531
R73 4.7K
R72 330K
WP1
WP2
TP2 0.5Vp-p
C64 C65 2.2μ
R74 100K
C20 25V 10μ
IC5 TL081
R27 1K
R29 1K
D3 IS1588
C21 0.1μ
C18 0.1μ
R25 100K
R80 10K
R81 5.1K
D2 IN60
C19 0.01
D1 IN60
C17 0.1μ
R24 100
TR6 2SC594-Y
R35 470
R37 100
R36 1K
C24 0.01
R22 330
C25 10μ
R39 75
R38 560
TP5
L2 5.6μ
C36 25V 100μ
C37 0.01
VR7 5K
C38 8P
R42 220
R45
R41 1K
IC6 LH0032
VR3 500
R44 2.7K
C39 25V 100μ
R43 1K
C40 0.1μ
L3 5.6μ
L4 5.6μ
C41 25V 100μ
C42 0.1μ
R46 220
IC7 LH0033
R47 75
IL6
RF OUT
C43 25V 100μ
C44 0.1μ
L5 5.6μ
X1 4MHz
R50 56K
R51 100K
C50 18P
C51 10P
R52 22K
R53 100
C55 5P
TR7 2SC373
TR8 2SC373
L1 10K 34T:17T
C56 100P
R57 10K
TR9 2SC373
C58 0.01μ
R58 4.7K
R59 1K
C53 10μ
C57 10μ
R54 100
R56 1.5K
C54 10μ
C52 470P
C59 25V 10μ
R60 1K
IC8 LM311
R61 2.2K
VR5 5K
R62 8.2K
R63 10K
R65 1K
R64 4.7K
TP3
R78 1.5K
PH3 TLP531
TR10 2SC373
C60 22μ
C66 22μ
R67 12K
R68 3.3K
C61 25V 10μ
R66 1K
IC9 LM311
C62 22μ
C67 22μ
R69 10K
R71 1K
R70 4.7K
TP4
R79 1.5K
PH4 TLP531
TR11 2SC373
TB1
L6
+15V
C68 25V 100μ
L7
-15V
C69 25V 100μ
TPG
D6, D7 1N60x2
VR1 5K
R26 5.23K
R28 10K
LEVEL IND
LEVEL IND
IL4

名称	TC02A DROPOUT SIGNAL GENERATOR
	DOG-1B
図番	P_3-M. 262083



名称	TC02A DROPOUT SIGNAL GENERATOR
	PULSE WIDTH
図番	P_3-M.262084



ATT-1A
LEC-268

名称	TC02A DROPOUT SIGNAL GENERATOR
	RF SIGNAL ATT
図番	P_3-M.262085

名称	TCO A DROPOUT SIGNAL GENERATOR I/O BOARD
図番	P_3-M.262086

名称	TC02A DROPOUT SIGNAL GENERATOR
	CPU BOARD
図番	P_3-M.262087

	J1 CPU		J2 IOB		J3	
	B	A	B	A	B	A
1					J6-2	J6-1
2					J6-4	J6-3
3					J6-6	J6-5
4					J6-8	J6-7
5					J6-10	J6-9
6					J6-12	J6-11
7						J6-13
8						
9						J6-14
10			J1-23B	J1-34A		
11			J1-24B	J1-24A		
12						
13						
14						
15						
16						
17					J6-16	J6-15
18						
19						
20						
21						J6-17
22			J1-28B	J1-28A		
23	J2-10B		J1-31B	J1-31A		
24	J2-11B	J2-11A	J1-32B	J1-32A		
25						
26			J4-2	J4-1	J5-2	J5-1
27			J4-4	J4-3	〃 4	〃 3
28	J2-22B	J2-22A	J4-6	J4-5	〃 6	〃 5
29	J7-2	J7-1	J4-8	J4-7	〃 8	〃 7
30			J4-10	J4-9	〃 10	〃 9
31	J2-23B	J2-23A	J4-12	J4-11	〃 12	〃 11
32	J2-24B	J2-24A	J4-14	J4-13	〃 14	〃 13
33			J4-16	J4-15	〃 16	〃 15
34		J2-10A	J4-18	J4-17	〃 18	〃 17
35			J4-20	J4-19	〃 20	〃 19
36			J4-22	J4-21	〃 22	〃 21
37			J4-24	J4-23	〃 24	〃 23
38				J6-18		
39						
40						
41						
42						
43						
44						

J6

	PIN NO		
J3-1A	1	2	J3-1B
J3-2A	3	4	J3-2B
J3-3A	5	6	J3-3B
J3-4A	7	8	J3-4B
J3-5A	9	10	J3-5B
J3-6A	11	12	J3-6B
J3-7A	13	14	J3-9A
J3-17A	15	16	J3-17B
J3-21A	17	18	J2-38A
	19	20	

1 2

J7 IL

	PIN NO
J1-29A	1
J1-29B	2
	3
	4

3 4

J4

	PIN NO		
J2-26A	1	2	J2-26B
J2-27A	3	4	J2-27B
J2-28A	5	6	J2-28B
J2-29A	7	8	J2-29B
J2-30A	9	10	J2-30B
J2-31A	11	12	J2-31B
J2-32A	13	14	J2-32B
J2-33A	15	16	J2-33B
J2-34A	17	18	J2-34B
J2-35A	19	20	J2-35B
J2-36A	21	22	J2-36B
J2-37A	23	24	J2-37B
	25	26	

J5

	PIN NO		
J3-26A	1	2	J3-26B
〃 27A	3	4	〃 27B
〃 28A	5	6	〃 28B
〃 29A	7	8	〃 29B
〃 30A	9	10	〃 30B
〃 31A	11	12	〃 31B
〃 32A	13	14	〃 32B
〃 33A	15	16	〃 33B
〃 34A	17	18	〃 34B
〃 35A	19	20	〃 35B
〃 36A	21	22	〃 36B
〃 37A	23	24	〃 37B
	25	26	

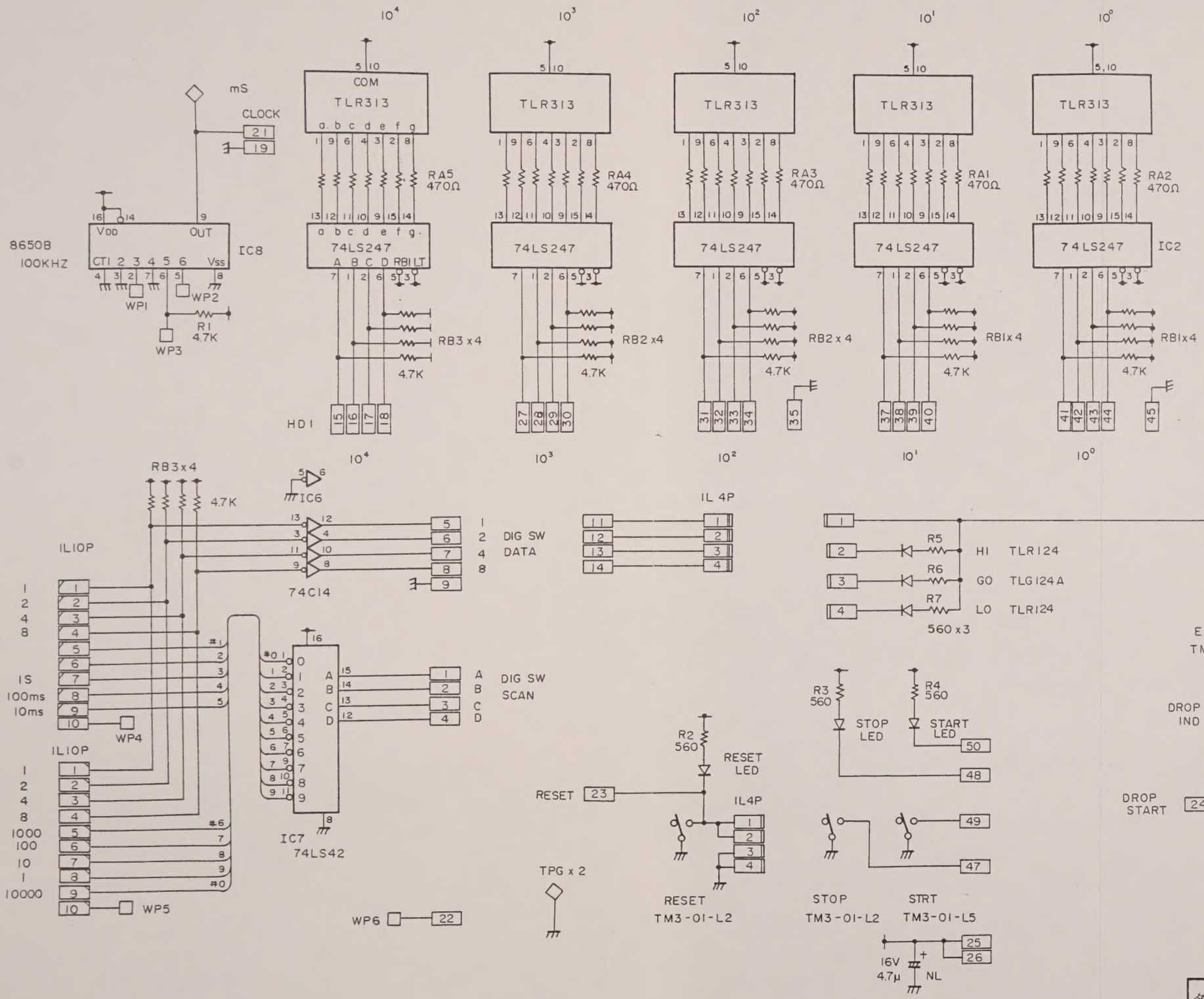
R1 R2 R3 R4

F1

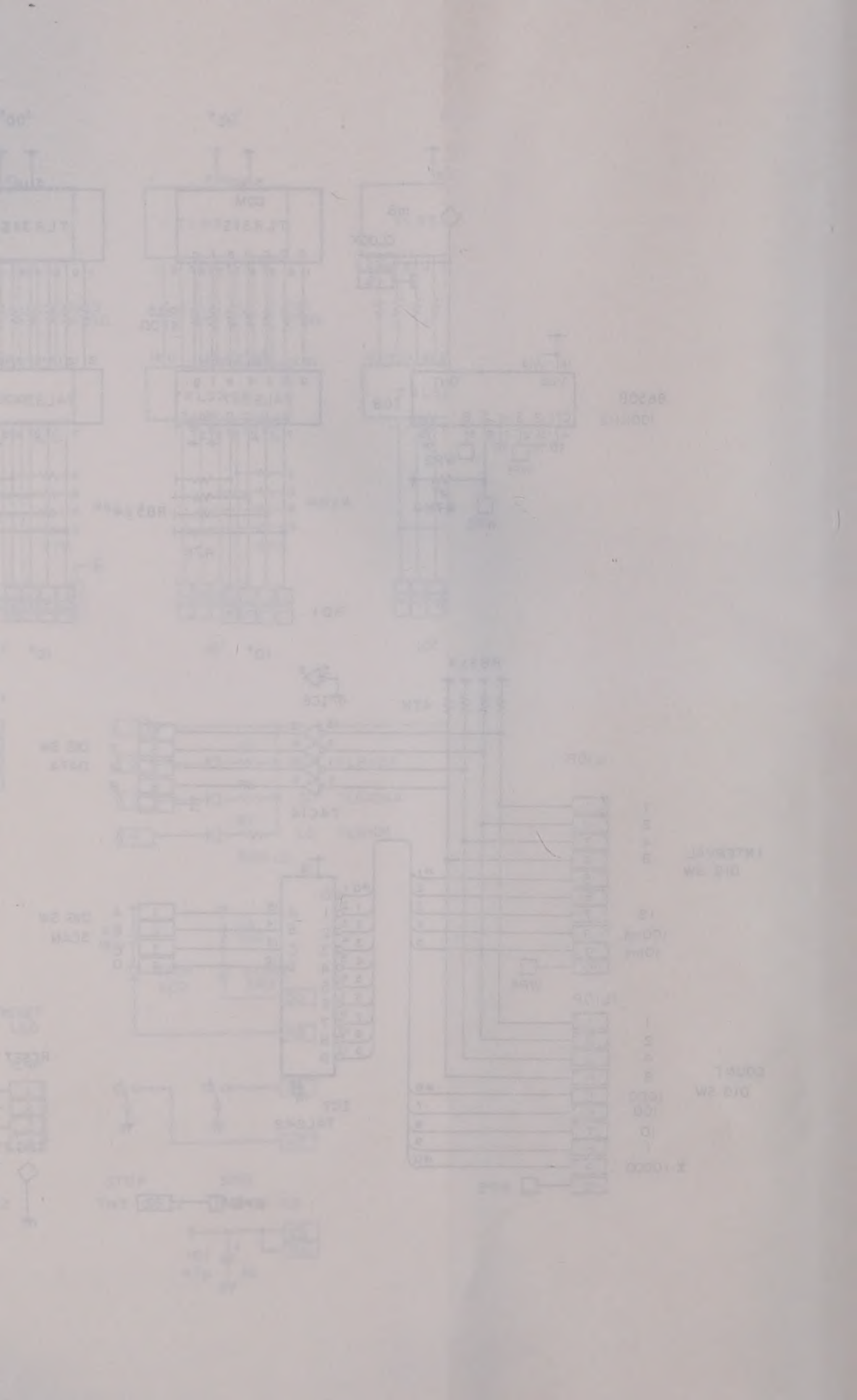
+5V 0V

名称	TC02A DROPOUT SIGNAL GENERATOR
	CPU MOTHER BOARD
図番	P_3-M.262088

△



名称	TC02A DROPOUT SIGNAL GENERATOR
	DISPLAY BOARD
図番	P_3-M.262089



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